OSAT Newsletter

Glenn Research Center

Issue 7   July - September 2000

Office of Safety and Assurance Technologies

Glenn Hosts 3rd Annual Assurance Technology Conference

NASA Associate Administrator, Frederick D. Gregory discusses recent advances in Risk Management with attendees of the NASA Assurance Technology Conference in Cleveland.

NASA SMA Professionals from around the country gathered in Cleveland on June 7th and 8th for this year's NASA Assurance Technology Conference.

Held annually at Glenn Research Center, the conference provides a venue for the exchange of ideas, experiences, successes, and challenges, and is attended by those responsible for the Safety, Reliability, Risk Management, and Quality Assurance of NASA's programs, operations, and activities.

This Third Annual Conference had as its theme: *Risk Management - Success Management*, and emphasized recent risk management initiatives as well as a number of other topics including Software Quality.

After welcoming remarks by GRC's Center Director, Donald J. Campbell, and GRC's SMA Director, Vernon W. (Bill) Wessel, who with Thomas Gender of JPL chaired the Conference, those in attendance heard the keynote address by Dr. Michael Stamatelatos of Code Q, who reviewed recent Risk Assessment and Management tool development and their applications.

The first day's sessions continued with presentations and discussions dealing with a diverse and broad range of Safety, Reliability and Quality Assurance topics that included Thermal Protection Systems and Analysis, Range Safety, Radiation Susceptibility, Space Mechanisms Assurance, and Long-Term Satellite Reliability.

A series of presentations and discussions followed that highlighted NASA's efforts to meet the challenges posed by its ever-growing reliance on software for both Safety and Mission Success. Several sessions of the Conference were devoted to current management and technical initiatives designed to maintain the control over software development that has been identified by the Administrator as critical to NASA's future success.

NASA Associate Administrator for Safety and Mission Assurance, Frederick D. Gregory, addressed the Conference on its second day and provided an update of recent actions and initiatives that impact the SMA community. He discussed the Agency Safety Initiative and Risk-Based Acquisition Management development at some length, and provided details on the restructuring of NASA's IV&V capability at Fairmont, WV, under the management of the Goddard Space Center.
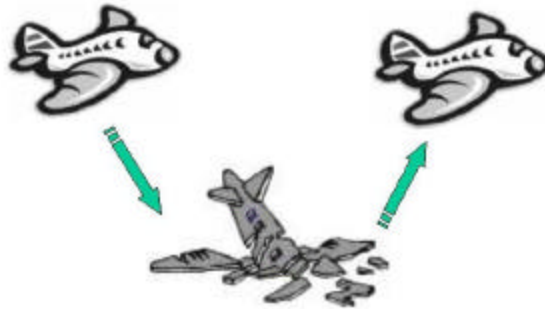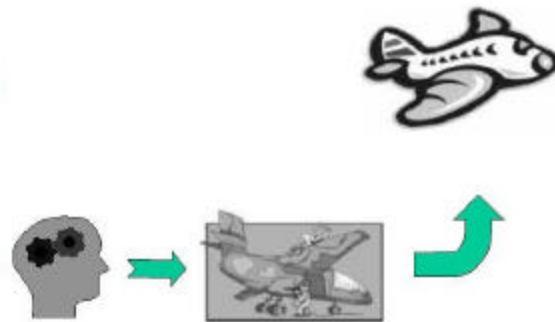
System Safety

FLY-FIX-FLY

This is what we in the System Safety group are working towards.

ANALYZE-FIX-FLY CONCEPT

Historically and traditionally, Safety efforts have been concentrated on Operations and immediate causes of accidents. One might term this method, Fly-Fix-Fly, as shown in the first picture.

As programs/projects/systems become more costly and complex this traditional safety emphasis becomes more costly than accident prevention or Analyze-Fix-Fly as shown in the second picture. Plus, of greater significance, is the concern for human life and limb. System Safety expenditures during design are always less costly than a fatal accident later. It is this early involvement of System Safety analysis that helps detect and manage safety risks of a design before these risks can become problems later. At Glenn, the System Safety group has typically concentrated on manned space flight projects. However, our Administrator, Mr. Goldin, has recently emphasized Risk Management responsibility for all NASA programs and projects. This, in concert with continuous improvement efforts, drives us to continuously try to employ System Safety principles across the lab wherever design of projects or systems may benefit from prevention of safety-related problems.

Four BMS documents cover the majority of work in the System Safety group: LeR-P0510.007, GRC-W0510.071, .072, .073. The Mission Safety (.007) procedure outlines System Safety activities for Glenn programs and projects. The three work instructions cover the preparation of Safety Data Packages, Safety Verification Tracking Logs, and Hazard Analyses.

With the movement towards Performance-Based Contracting, the Glenn System Safety group will gradually decrease its in-line System Safety activities. We will, however, continue in a consulting, oversight, and approval role. The responsibility for System Safety activities remains in the most cognizant hands – program and project personnel most familiar with their program and project risks.

The ultimate goal of System Safety is mission success. Freedom from injury, damage, or loss of resources, allows greater flexibility for the science or operations of the mission to accomplish its objective.

QUALITY MANAGEMENT OFFICE

Government Industry Data Exchange Program (GIDEP)

GIDEP is a cooperative activity between government and industry participants seeking to reduce or eliminate expenditures of resources by making maximum use of existing information. The program provides a media to exchange technical information essential during research, design, development, production, and operation phases of the life cycle of system, facilities, and equipment. GIDEP is managed and funded by the U.S. Government.

Participants in GIDEP are provided electronic access to the six major types of data including: Engineering Data, Failure Experience Data, Metrology Data, Product Information Data, Reliability and Maintainability Data, and Urgent Data Requests. Design Engineers may find a ready source of qualified parts information to meet their specific applications, which can greatly shorten the time for design and parts selection.

NPG 8735.1 requires NASA Glenn Research Center to participate in GIDEP to develop, document and implement a process. This process documents, controls, and corrects problems and non-conforming items. The procedure for the above process provides for the preparation, distribution, and close-out of GIDEP ALERTS, SAFE ALERTS, Problem Advisories, Agency Action Notices, and NASA Advisories. The Glenn GIDEP Representative (GDR) is responsible for the development and implementation of this process.

Upon receipt of the alerts from GIDEP/NASA Alert Reporting System (NARS), the GDR performs an initial evaluation for technical applicability to GRC Programs. The report is disseminated to the appropriate program/project alert focal point for detailed assessment per program requirements. The assessment includes unusual failures or potential failures of items under normal operating or storage conditions, isolated failures of the same part or material which is indicative of a failure trend, non-conformance of parts, failure of safety devices, items which adversely affect safety, erroneous specifications, etc. The Problem Impact Checklist is generated if there has been an impact on any of the alerts, and sent back to the GDR. An impact is then evaluated and dispositioned as appropriate. Alert searches are performed on all Space Flight Projects prior to Preship Review, and impacts are closed out with a rationale/justification. If you have any questions about this program, please call the GDR, Bipin Patel, at 3-6531.

Working Safely Outdoors

It's that time of year when companies try to spruce up the exterior grounds surrounding their buildings. While it may seem like an advantage to workers to be outdoors, there are many job-related hazards that come with grounds maintenance.

Equipment Accidents

Outdoor tools such as clippers, trimmers, leaf blowers, chain saws, and machinery (such as mowers) pose great risks. Workers should read the instructions before operating any machine with which they are unfamiliar or before changing any part. Other hints to follow include:

- Leave guards in place. They prevent contact with sharp or moving parts.
- Wear recommended Personal Protective Equipment (PPE) such as gloves, sturdy shoes or boots with nonskid soles, and safety goggles to protect eyes from flying particles. Hearing protection should also be used.
- Avoid loose clothing, long hair worn loose, and jewelry that could get caught in moving parts.
- Refuel or start mower and tractors with the machine turned off and the engine cool. Do not smoke around any gasoline-powered equipment.
- Clear away loose rocks or debris before mowing.

Another risk of outdoor work is contact with power lines, either overhead or buried. The bottom line is – do not come into contact with energized lines! When working near them, it is essential to follow OSHA rules and use insulated PPE, and non-metal tools and ladders.

Weather Warnings

Even light rain can make things slippery, so be careful during inclement weather. One storm hazard that can be fatal is lightning. Move indoors during thunderstorms, if possible; if not, take refuge in a closed-roof vehicle or lie flat on the ground. Stay away from trees, open water, and metal objects that can conduct electricity.

In hot weather, drink plenty of water, and wear sunscreen and a hat with a brim. If you feel light-headed, dizzy, or nauseous, go inside at once. If your pulse becomes rapid and sweating stops, get medical help immediately.

Poisonous Plants

Even someone who has never had a reaction before may experience one after touching plants, such as poison ivy, poison oak, or poison sumac, and develop an itchy rash, so:

- Wear long pants and sleeves, work gloves, and boots that completely cover the feet.
- Do not touch skin, clothing, or tools that had come into contact with plants that may be poisonous.
- Wash thoroughly with soap and water after any outdoor work, then use alcohol to cleanse any skin that may have come in contact with plants.
- Do not scratch! Check the first-aid kit for a cream or spray recommended for relief.

OSHA Compliance Advisor, Issue No. 395, May 19, 2000

Lyme Disease

Lyme disease is a multisystem, multistage, inflammatory illness caused by *Borrelia burgdorferi*, a spirochete bacterium. The bacteria are transmitted to humans through blood-feeding ticks infected with the bacteria. The primary vector for the spread of the bacteria in the northeast United States is the deer tick, *Ixodes scapularis*. Despite its name, the deer tick is found on many large animals such as moose, elk, and bear: although the white-tailed deer would be the primary carrier in northeastern Ohio.

Humans pick up the ticks when they walk through wooded areas and come into direct contact with brush and debris containing the ticks. The ticks like to attach to hidden, hairy areas on the body such as the armpit, groin and scalp areas. The bacteria get transmitted about 36 hours after the tick has attached itself and started feeding.

Early diagnosis of the disease is essential for successfully treating the disease. Delayed treatment can lead to severe, chronic and disabling effects. Symptoms of the disease include a bulls-eye rash around the site of attachment. The rash presents itself in 60-80% of infected individuals. Other symptoms include general flu-like symptoms such as fever, lymph node swelling, neck stiffness, generalized fatigue, headaches and migrating joint and muscle aches. Diagnosis is generally made based on known exposure and clinical signs and symptoms. Blood tests can also be performed to support the diagnosis.

The deer tick has not been established in Ohio; however, a few have been found to make their way into the state via birds and other migrating animals. In response to the outbreaks of Lyme Disease in the New England states, the Ohio Department of Health has inspected deer and wooded areas for the deer ticks. Since 1983, only 11 deer ticks have been found in Ohio. None of the eleven was infected with *Borrelia burgdorferi*. Over the last couple of years the Cuyahoga County Board of Health has inspected deer for ticks during the Metropark's deer culling – to date, no ticks have been discovered.

According to the Ohio Department of Health, there were 45 cases of Lyme Disease reported in Ohio last year. Those cases all occurred within 26 counties including Cuyahoga County. There were five cases of Lyme Disease reported in Cuyahoga County last year; however, the Ohio Department of Health records cases based on the county in which the exposed individual lives. Therefore, it is not known if the individuals acquired the disease within Cuyahoga County or while traveling.

Recommendations for Prevention

Although the potential for exposure to infected deer ticks is very low, it is always good practice to wear long, light-colored trousers when working in wooded areas and heavy brush. Trousers should be tucked inside socks or boots to prevent ticks from getting in under the pant leg. Light colored clothing is recommended because it allows ticks to be seen more easily. After working in a wooded area, always check the body very carefully for ticks; the deer tick is only the size of a pin head so check carefully.

When a tick is found, it should be removed immediately. Removal should be done by a medical professional whenever possible; however, if medical treatment is not readily available, then the tick can carefully be removed by grasping the tick with a pair of tweezers as close to the skin as possible and pulling straight out with firm, steady pressure. Do not twist or jerk the tick, as the mouthparts might break off and remain in bedded under the skin. Squeezing or crushing the tick can cause infected fluids from within the tick to become injected into the site. After the tick has been removed, thoroughly disinfect the site and wash your hands. The tick should be placed in a small jar or vial with a moist piece of paper towel and sent to the Ohio Department of Health's Vector-borne Disease Program for testing (614)-752-1029.

References
1. Joe Lynch, R.S., Vector Program Manager. Personal Interview. Cuyahoga County Board Of Health.
2. "Lyme Disease". Hazard Information Bulletin. U.S. Department of Labor, Occupational Safety and Health Administration. April, 2000
3. "Lyme Disease Fact Sheet". Ohio Department of Health. Nov 1999.
4. "Lyme Disease Facts". U.S. Department of Labor, Occupational Safety and Health Administration.

Security Management Office

Frequently Asked Questions

Some of the most frequently asked questions of the Security Management Office.

Q. How do I get a visitor on the Center?
A. There are three ways to get a visitor on the Center or into the DEB.
    Main Lab
- Appear in person with the visitor at the Main Gate Visitor Control
- Call the Main Gate Visitor Control (3-2205)
- Send an Email request to the Main Gate Visitor Control person (Gerry Amore)

    DEB
- Appear in person with the visitor at the DEB Lobby
- Call the DEB Visitor Control (3-2328)
- Send an Email request to the DEB Visitor Control person (Elaine Graber)

Q. How do I reserve the picnic grounds or Guerin House?
A. Contact the Logistics and Technical Information Division, Angela Spruce, (3-3086) for reservations or to receive authorization to check out the key from Security.

Q. I have locked myself out of my office, how do I get the room door opened?
A. If it is your office, first contact the Building Manager for access. If the Building Manager is not available, contact the Main Gate at 3-2203/4.

Q. What responsibilities do on-site contractors have when their personnel are terminated?
A. Permanent On-site contractors (those holding picture badges) are reminded that when terminating and/or resigning you are required as part of your contract to fill out NASA Form C-315, Non-NASA Separation Clearance Record. The form requires you to make an inquiry of all offices listed on the form for the return of government issued equipment including lock keys. Your last stop will be at the Main Gate Badge Clerk for the return of your Government-issued identification badge.

Company supervisors are to ensure that the terminated and/or resigned employee has returned his/her badge to the Main Gate Badge Clerk. Final clearance of a contractor upon completion of a contract will depend in part upon the accounting of all badges issued to employees during the performance of the contract. It should be recognized that security badges are Government property and any alteration or misuse of these badges may be prosecuted as a violation of Section 499, Title 18, U.S. Code.

Q. Who does NASA consider a Foreign National?
A. A Foreign National: Refers to any person who is not a citizen of the United States. This does not include permanent resident aliens of the United States. A Foreign Representative: A Foreign Representative is a U.S. citizen, permanent resident alien, or a person admitted with refugee status to the United States, who seeks to visit GRC for the purpose of representing a government, business, organization, or person of a country other than the United States.

Q. What are the first steps I need to accomplish to sponsor a visit by a Foreign National or representative?

A. Have the visitor coordinate through their embassy in Washington D.C., for their concurrence with the visit. Then complete a NASA Form C-216 (Non-U.S. Citizen Access Request) that can be sent through the approval process. This process requires 6-weeks for approval, so please plan ahead. Some further requirements may be required depending on country and length of visit.

Q. What is required for a long-term international visitor to have access to NASA Information Technology Systems, and be issued a permanent picture badge?

A. A completed National Agency Check (NAC) - which takes 70 - 90 days to complete, an Area Security and Export Control Plan (for each area), An IT Systems Security Plan (for each IT System). Any questions can be directed to